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The Detection of Lambing Behaviour with the Use of GNSS Technology

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This project was undertaken to determine whether there is a use of GNSS tracking technology to accurately detect behavioural changes in ewes before or during parturition. Lambing has been identified as one of the major constraints to the sheep industry, with lambing mortality in Australian systems between 5-30%. This level of mortality is highest in the days following lambing and can largely be caused by difficulties during parturition.

GNSS collars were deployed on pregnant merino ewes to compare with manually recorded lambing times. From the spatial data recorded by the GNSS collars, 3 metrics were derived based upon literature analysis. These metrics to be tested were: Mean Daily Speed (MDS), Mean Hourly Speed (MHS) and Mean Distance from Peers (MDP).

Both the MDS and MHS metrics were found to have significant differences between pre and post lambing, with a decrease in average speeds post lambing. There was however no significant indicators for the detection of pre lambing activity, in terms of the lead up to parturition. The MDP metric indicated a significant effect at the time of lambing, which was indicated by the ewes mean distance being further away at lambing.

At this time further research is required to investigate combining the MDP metric and the MDS/MHS metrics. Both the speed metrics indicate that there is a significant change, and the distance metric indicates a significant effect at lambing.